Dexmedetomidine INTRAVENOUS for Adults

Who can administer

Administration RESTRICTED - see Appendix 1

Important information

- May only be initiated by a **Consultant Intensivist/Anaesthetist.**
- **Doses in excess of the licensed maximum of 1.4microgram/kg/hour must also be authorised by consultant**.
- **AVOID** a loading dose in ICU sedation (increased adverse reactions)
- There is no experience with use of this drug for longer than 14 days
- Cardiovascular contraindications include: advanced heart block (grade 2 or 3) unless paced, uncontrolled hypotension, acute cerebrovascular conditions
- An unlicensed concentration of **10microgram/ml** is being used on the intensive care unit for safety and pharmacoeconomic reasons (ref 1)
- For Y-site compatibility see below

Available preparations

Dexdor solution for infusion 400microgram in 4ml (for **use in Critical Care only**)

Dexdor solution for infusion 200microgram in 2ml (for **use in Theatres only**)

Reconstitution

Already in solution

Infusion fluids

Sodium chloride 0.9% or Glucose 5%

Methods of intravenous administration

For Intensive Care use (longer term)

- Add **4ml** (400 micrograms) to **36ml** of diluent (final concentration of **10micrograms/ml**) (ref 1)

For **Theatres**

- Add **2ml** (200 micrograms) to 48ml of diluent (final concentration of **4micrograms/ml**)

Concentrations above 4microgram/ml: administer via a large vein or preferably through a dedicated port of a central line (ref 1)

Dose in adults

A: Starting dose for use in intensive care as per license

A1. Intensive Care

- 0.7microgram/kg/hour - but frail patients may require lower starting doses

A2. Maintenance dose for use in intensive care as per license

- Normally 0.2 to 1.4microgram/kg/hour
- Exceptionally unlicensed doses up to 2.5microgram/kg/hour - at consultants discretion [ref 2]
- After dose adjustment, a new steady state sedation level may not be reached for up to one hour

ICU USE ONLY: Dexmedetomidine 10microgram/ml: flow rates in ml/hour													
Dose (micrograms/kg/hour)	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1**	**1.1**	**1.2**	**1.3**	**1.4**
Weight (kg)													
35kg, using 400mcg/40ml	0.7	1.1	1.4	1.8	2.1	2.5	2.8	3.2	3.5	3.9	4.2	4.6	4.9
40kg, using 400mcg/40ml	0.8	1.2	1.6	2	2.4	2.8	3.2	3.6	4	4.4	4.8	5.2	5.6
45kg, using 400mcg/40ml	0.9	1.4	1.8	2.3	2.7	3.2	3.6	4.1	4.5	5	5.4	5.9	6.3
50kg, using 400mcg/40ml	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7
55kg, using 400mcg/40ml	1.1	1.7	2.2	2.8	3.3	3.9	4.4	5	5.5	6.1	6.6	7.2	7.7
60kg, using 400mcg/40ml	1.2	1.8	2.4	3	3.6	4.2	4.8	5.4	6	6.6	7.2	7.8	8.4
65kg, using 400mcg/40ml	1.3	2	2.6	3.3	3.9	4.6	5.2	5.9	6.5	7.2	7.8	8.5	9.1
70kg, using 400mcg/40ml	1.4	2.1	2.8	3.5	4.2	4.9	5.6	6.3	7	7.7	8.4	9.1	9.8
75kg, using 400mcg/40ml	1.5	2.3	3	3.8	4.5	5.3	6	6.8	7.5	8.3	9	9.8	10.5
80kg, using 400mcg/40ml	1.6	2.4	3.2	4	4.8	5.6	6.4	7.2	8	8.8	9.6	10.4	11.2
85kg, using 400mcg/40ml	1.7	2.6	3.4	4.3	5.1	6	6.8	7.7	8.5	9.4	10.2	11.1	11.9
90kg, using 400mcg/40ml	1.8	2.7	3.6	4.5	5.4	6.3	7.2	8.1	9	9.9	10.8	11.7	12.6
95kg, using 400mcg/40ml	1.9	2.9	3.8	4.8	5.7	6.7	7.6	8.6	9.5	10.5	11.4	12.4	13.3
100kg, using 400mcg/40ml	2	3	4	5	6	7	8	9	10	11	12	13	14
105kg, using 400mcg/40ml	2.1	3.2	4.2	5.3	6.3	7.4	8.4	9.5	10.5	11.6	12.6	13.7	14.7
110kg, using 400mcg/40ml	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11	12.1	13.2	14.3	15.4
115kg, using 400mcg/40ml	2.3	3.5	4.6	5.8	6.9	8.1	9.2	10.4	11.5	12.7	13.8	15	16.1
120kg, using 400mcg/40ml	2.4	3.6	4.8	6	7.2	8.4	9.6	10.8	12	13.2	14.4	15.6	16.8
125kg, using 400mcg/40ml	2.5	3.8	5	6.3	7.5	8.8	10	11.3	12.5	13.8	15	16.3	17.5
130kg, using 400mcg/40ml	2.6	3.9	5.2	6.5	7.8	9.1	10.4	11.7	13	14.3	15.6	16.9	18.2
135kg, using 400mcg/40ml	2.7	4.1	5.4	6.8	8.1	9.5	10.8	12.2	13.5	14.9	16.2	17.6	18.9
140kg, using 400mcg/40ml	2.8	4.2	5.6	7	8.4	9.8	11.2	12.6	14	15.4	16.8	18.2	19.6
145kg, using 400mcg/40ml	2.9	4.4	5.8	7.3	8.7	10.2	11.6	13.1	14.5	16	17.4	18.9	20.3
150kg, using 400mcg/40ml	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5	21
155kg, using 400mcg/40ml	3.1	4.7	6.2	7.8	9.3	10.9	12.4	14	15.5	17.1	18.6	20.2	21.7

B. Theatres

B1. For the initiation of Procedural/awake Sedation

- Give a loading infusion of 1microgram/kg over 10 minutes
- For less invasive procedures e.g. ophthalmic surgery give 0.5 micrograms/kg over 10 minutes

B2. For the maintenance of Procedural Sedation

- The maintenance infusion is usually started at 0.6-0.7 microgram/kg/hour.
- Titrate to desired clinical effect with doses ranging from 0.2 to 1 microgram/kg/hour.
- Adjust the rate of the maintenance infusion to achieve the targeted level of sedation

THEATRES USE ONLY : Dexmedetomidine 200microgram in 50ml														
Weight (kg)	**30kg**	**40kg**	**50kg**	**60kg**	**70kg**	**80kg**	**90kg**	**100kg**	**110kg**	**120kg**	**130kg**	**140kg**	**150kg**	**160kg**
LOADING dose in microgram (mcg) (give 50% for light sedation)	30mcg	40mcg	50mcg	60mcg	70mcg	80mcg	90mcg	100mcg	110mcg	120mcg	130mcg	140mcg	150mcg	160mcg
INITIAL MAINTENANCE DOSE(ml/hour)(@0.65mcg/kg/hr) ***using 200microgram/50ml saline or glucose 5%***	4.9ml/hr	6.5ml/hr	8.1ml/hr	9.8ml/hr	11.4ml/hr	13ml/hr	14.6ml/hr	16.3ml/hr	17.9ml/hr	19.5ml/hr	21.1ml/hr	22.8ml/hr	24.4ml/hr	26ml/hr
LOW END OF THERAPEUTIC RANGE(ml/hour) @0.2mcg/kg/using 200microgram/50ml saline or glucose 5%	1.5ml/hr	2ml/hr	2.5ml/hr	3ml/hr	3.5ml/hr	4ml/hr	4.5ml/hr	5ml/hr	5.5ml/hr	6ml/hr	6.5ml/hr	7ml/hr	7.5ml/hr	8ml/hr
HIGH END OF THERAPEUTIC RANGE (ml/hour) @1mcg/kg/using 200microgram/50ml saline or glucose 5%	7.5ml/hr	10ml/hr	12.5ml/hr	15ml/hr	17.5ml/hr	20ml/hr	22.5ml/hr	25ml/hr	27.5ml/hr	30ml/hr	32.5ml/hr	35ml/hr	37.5ml/hr	40ml/hr

Hepatic impairment

- Use with caution. Lower doses may be required

Monitoring

- Monitor for additive effects where midazolam or propofol are concerned. Midazolam or propofol may be administered if needed until clinical effects of dexmedetomidine are established
- Monitor for cardiovascular side effects such as: bradycardia, hypotension and hypertension [ref 3], especially if using other agents with this side effect profile e.g. beta-blockers
- Monitor for respiratory depression, airway obstruction, dypsnoea and oxygen desaturation when administered for conscious sedation
- If concentrations above 4microgram/ml are being used, monitor the area distal to the infusion for evidence of irritation [ref 1]

Storage

Store below 25^{0}C

References

SPC Dexdor SP 13/01/2020

1. "Infusion concentration information". Email received from Orion Pharma via Anne Heavey on 20 March 2013. Email received from Julie Boothe 19 November 2018
2. Written communication from Dr Patrick Neligan Jan 21 2015 and November 7 2018
3. Uptodate - accessed online 16/11/2021

Therapeutic classification

Selective alpha-2 receptor agonist

BNF

CNS